



Record of Modification

Phase II Site Characterization Sampling and Analysis Plan Field Activities
Columbia Fall Aluminum Company RI/FS
Phase II SAP MOD #3

Instructions to Requester: Submit to Roux RI Manager or Roux RI/FS Project Manager
Roux RI Manager will maintain legible copies in a binder that can be accessed by personnel.

Project Work Plan/QAPP (check one):

- ☒ 2018 Phase II SAP
- ☐ SOP (Title, # and approval date): _____

Requester: Laura Jensen, Project Hydrogeologist Date: June 15, 2018

Applicable section of SAP/SOP:

Phase II SAP, Section 4.5 (Soil Borings and Soil Sampling), subsection Nature and Extent of COPCs in Site Features

Description of Modification:

Select Phase II soil borings and additional proposed soil borings will be analyzed for total chromium and hexavalent chromium (Cr(VI)) in surficial and shallow soils.

Rationale for Modifications / Potential Implications of Modifications:

As part of the Phase I Site Characterization soil sampling program, Roux collected soil samples for total chromium to characterize the nature and extent of contaminants at the Site. As part of the draft Phase I Data Summary Report review, USEPA requested that concentrations for total chromium were compared to the more stringent criteria for Cr(VI) as a conservative measure since Cr(VI) was not analyzed at the Site, and since the valence state of chromium at the Site was unknown. Additionally, as part of the draft Human Health Risk Assessment Work Plan review, USEPA requested that risk calculations assume the ratio of chromium occurrence at the Site for trivalent chromium (Cr(III)) to Cr(VI) as 6:1. As a result of the more stringent screening criteria and ratio, chromium was carried through as a contaminant of potential concern/contaminant of potential ecological concern (COPC) in many exposure areas as part of the preliminary screening in the draft risk assessment work plans.

CDM Smith, on behalf of USEPA, requested in follow-up correspondence that CFAC develops a Site-specific ratio of Cr(III) to Cr(VI) by collecting soil samples to be analyzed for Cr(III) to Cr(VI). It should be noted that no Cr(VI) is known to have been used in the aluminum manufacturing process (reduction process) or other processes onsite. Additionally, the process was a reduction process, and any metals present would be reduced to Cr(III).

To determine the most appropriate areas to collect soil samples to be analyzed for total chromium and Cr(VI), CFAC/Roux compared the total chromium results to the USEPA Residential and Industrial RSLs for Cr(VI) (non-carcinogenic, HQ=0.1). As noted in the draft BHHRA WP, USEPA's Integrated Risk Information System (IRIS) states "No data were located in the available literature that suggested that Cr(VI) is carcinogenic by the oral route of exposure" (USEPA, 2017b). As such, Cr(VI) was not evaluated as an oral carcinogen.

Plate 1 presents a thematic dot map of soil locations where concentrations exceed the USEPA Residential Cr(VI) non-carcinogenic value of 23 mg/kg. As presented in Plate 1, these exceedances are concentrated in the Main Plant Area and former Operational Area of the Site. No concentrations exceeded the USEPA Industrial Cr(VI) non-carcinogenic value of 250 mg/kg.

Proposed Modification Scope of Work:

In an effort to characterize the valence state of chromium in soil at the Site, 10 surface and shallow samples will be collected from the locations identified on Figure 1 and analyzed for total and Cr(VI). Results that are non-detect for Cr(VI) will be assumed as Cr(III). Some soil boring locations presented on Figure 1 were already proposed for collection as part of the Phase II, and some new soil borings are proposed to be added to the scope in order to properly characterize the areas. The results of this analysis will be evaluated in the Phase II Data Summary Report.

Total Chromium will be analyzed as Target Analyte List (TAL) metals via USEPA Method 6020A and Cr(VI) will be analyzed as USEPA Method 7196A.

Data Quality Objectives:

The goals and scope of the additional onsite sampling to further characterize chromium were developed consistent with the DQOs outlined in the Phase II SAP.

Duration of Modification (Check one):

☐ Temporary

Date(s) _____

Sample Numbers Affected Existing Locations – CFSB-189, 205, 214, 273, 281

New Locations – CFSB-288, 289, 290, 291, 292

☒ Permanent (Proposed Text Modification Section) Effective Date: June 15, 2018

Proposed Text Modifications in Associated Document:

This form serves to document the change as described above, no document revisions are proposed.

Data Quality Indicator (check one) – Please reference definitions on next page for direction on selecting data quality indicators:

☐ Not Applicable ☐ Reject ☐ Low Bias ☐ Estimate ☐ High Bias ☒ No Bias

Roux Project Manager Approval: Laura Jensen Date: June 15, 2018
(Roux RI/FS Project Manager or designate)

EPA Review and Approval: Mike Cirian Date: _____
(USEPA RPM or designate)

DATA QUALITY INDICATOR DEFINITIONS

Reject – Samples associated with this modification form are not useable. The conditions outlined in the modification form adversely affect the associated sample to such a degree that the data are not reliable.

Low Bias – Samples associated with this modification form are useable, but results are likely to be biased low. The conditions outlined in the modification form suggest that associated sample data are reliable, but estimated low.

Estimate – Samples associated with this modification form are useable, but results should be considered approximations. The conditions outlined in the modification form suggest that associated sample data are reliable, but estimates.

High Bias – Samples associated with this modification form are useable, but results are likely to be biased high. The conditions outlined in the modification form suggest that associated sample data are reliable, but estimated high.

No Bias – Samples associated with this modification form are useable as reported. The conditions outlined in the modification form suggest that associated sample data are reliable as reported.